

REMARKS

Claims 1-6, 20 and 21 are pending in the present application. Claims 7-19 have been cancelled herein. Claims 20 and 21 have been added herein.

I. FORMAL MATTERS

Applicant notes with appreciation that the First Office Action acknowledges the claim to priority and indicates that the priority documents have been received.

Applicant notes with appreciation that the Office Action includes a copy of the PTO Form 1449 that was submitted with the Information Disclosure Statement filed on March 26, 2004. Each reference is initialed by the Examiner, thereby indicating that each reference was considered and should be listed on the face of any patent that issues from the present application.

The First Office Action does not indicate whether the formal drawings submitted on March 26, 2004 are acceptable. **Applicant respectfully requests the Examiner to do so.**

## II. PRIOR ART REJECTIONS

### A. Claims 1-4

Claims 1-4 are rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 6,656,804 (Tsujikawa). This rejection is traversed.

The Examiner asserts that Tsujikawa discloses a gate dielectric film 6/3 and that below the depth of 0.5 nm the gate insulator layer is pure silicon nitride. Applicant submits that Tsujikawa does not teach or suggest a gate insulator layer wherein the atomic ratio of oxygen atoms included in the gate insulator layer is 5 atm. % or below, as recited by claim 1, on which claims 2-4 depend. Rather, the gate dielectric film 6 of Tsujikawa comprises multiple layers of silicon oxide film 2 and silicon nitride 3. Tsujikawa admits that the top surface of the silicon nitride 3 absorbs oxygen from the atmosphere (see column 4, lines 31-41). Therefore, the atomic ratio of oxygen atoms included in the gate insulator layer 6 cannot be 5 atm. % or below.

Therefore, because Tsujikawa does not teach or suggest each and every feature of claims 1-4, the rejection of these claims under 35 U.S.C. § 102(a) is improper.

### B. Claims 5 and 6

Claims 5 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Tsujikawa in view of U.S. Patent No. 6,713,819 (En). This rejection is traversed.

En does not make up for the deficiencies of Tsujikawa. Therefore, Applicant submits that the rejection of claims 5 and 6 is improper because the combination of Tsujikawa and En fails to form the invention defined by these claims. Thus, Applicant respectfully requests that the rejection of claims 5 and 6 under 35 U.S.C. §103(a) be withdrawn.

#### C. NEW CLAIMS 20 AND 21

New claim 20 recites that the entire gate insulation layer has an atomic ratio of oxygen at 5 atm. % or below. As presented above, in Tsujikawa the top surface of the silicon nitride 3 absorbs oxygen from the atmosphere (see column 4, lines 31-41). Therefore, Tsujikawa does not teach or suggest this feature of new claim 20.

New claim 21 recites that the gate insulator layer does not include an interface reaction layer including oxygen at an interface with the gate electrode. As presented above, the top surface of the gate dielectric film 6 of Tsujikawa absorbs oxygen from the atmosphere (see column 4, lines 31-41). Therefore, the interface reaction layer of the gate dielectric film 6 includes oxygen at the interface with the gate electrode 7. Therefore, Tsujikawa does not teach or suggest this feature.

Amendment Under 37 C.F.R. § 1.111  
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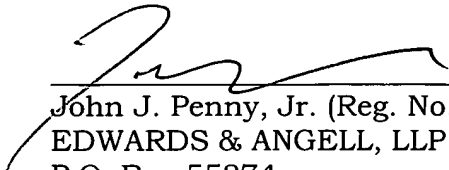
Because Tsujikawa does not teach or suggest the features of new claims 20 and 21, Applicant submits that these new claims are patentable over Tsujikawa and the applied prior art.

If the Examiner believes that any outstanding issue could be resolved through a telephone interview, Applicant kindly requests the Examiner to contact the undersigned at the telephone number listed below.

Applicant believes that no additional fees are due for the subject application. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,

Date: April 27, 2005  
Customer No.: 21874

  
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